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Abstract

Sociodemographic Differences in Smokers' Experiences with a Mindfulness-Based Addiction Intervention: A Qualitative Examination

By

Hala Elahi

April 25, 2019

Introduction: Research supports the benefits of mindfulness-based interventions for improving stress management and treating addiction. However, the majority of this work has focused on relatively affluent, predominantly non-Latino white populations. It is important to understand how people from various sociodemographic backgrounds might learn and practice mindfulness.

Aim: Examine sociodemographic differences in smokers' experiences with a mindfulness-based addiction intervention.

Methods: The parent study was a randomized controlled trial in which smokers were randomized to receive Mindfulness-Based Addiction Treatment (MBAT, in which they received an 8-week intervention program, nicotine patch therapy, and self-help materials) or iQuit Mindfully (in which they received the same intervention program, nicotine patch therapy, and self-help materials, with the addition of between-session text messages) over the course of 8 weeks. At baseline, participants in both groups completed sociodemographic questions. These questions included age [categorized as younger (18-30), middle age (31-49) or older (50-65)], sex, and income [categorized as lower income (a yearly annual household income of \leq \$18,000), mid-income (a yearly income of \$18,001-\$60,000) and higher-income (\geq \$60,001). Participants in both groups also participated in in-depth, one-on-one interviews at one-month follow-up. These interviews involved questions regarding participants' experiences with mindfulness outside of the group sessions. The interviews also assessed how often participants discussed participating in both formal and informal practices of mindfulness. Due to loss to follow-up, 60 of the 71 initial participants completed the interviews. Interviews were audio-recorded, transcribed verbatim and coded using NVivo 11.

Results: Three main themes were identified during qualitative analysis: Mindfulness Practice, Mindfulness Strategies to Quit Smoking, and Other Applications of Mindfulness Practice, along with subthemes within each. The data indicated that practicing mindfulness outside of the group sessions was mentioned more among the older age group than any other age group (30-49, 50-65) and among middle income participants rather than low or high income participants. Overall, women mentioned practicing formal mindfulness more often than men. Lower SES individuals and older individuals mentioned practicing both informal and formal practices compared to mid/higher SES and middle age/younger individuals, respectively. Results also showed that plans for future mindfulness practice were mentioned more amongst lower SES women.

Discussion: The data suggest that overall, older participants were more likely to mention practicing any type of mindfulness and plan for future mindfulness practice. Findings also suggest that women mentioned practicing mindfulness or plans for future mindfulness practice more than men. Lastly, data suggest that mid-income participants were likelier to mention

practicing mindfulness strategies to quit while low income participants mentioned and incorporating it for other behaviors than any other income group.

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Addiction Intervention: A Qualitative Examination

By

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B.S., Georgia State University

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Author's Statement Page

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Hala Elahi

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Chapter 1 – Introduction

Background

Mindfulness has started to become more of an emerging topic amongst many parts of the world and research suggests that this practice can have a positive impact on myriad health issues, including improved stress management, anxiety and even anger issues. Mindfulness is an evolving subject which has many advantageous qualities that are still being found today. This simple but valuable concept could benefit many types of health problems facing people today, including mental and physical issues. Most research on mindfulness has focused on high-income, non-Latino white populations. Mindfulness might not be the best intervention for everyone, but it is important to understand how it is perceived and whether or not it is beneficial across more diverse populations. Most mindfulness research has not included sufficiently diverse populations and we need to understand how people from various sociodemographic backgrounds might learn and experience mindfulness practice.

Study Purpose

The purpose of this study was to identify the sociodemographic characteristics of individuals that mention practicing mindfulness and explore how we can use this information to adapt it to diverse populations. Our aim was to examine sociodemographic differences in smokers' experiences with a mindfulness-based addiction intervention. It's important to understand how individuals with different sociodemographic characteristics perceive mindfulness so that we can improve the overall health of society, by providing insight on a diverse population. A more nuanced understanding may help us understand how experiences with mindfulness may vary for certain groups. Participants in the parent study received

Mindfulness-Based Addictions Treatment for smoking cessation and then engaged in individual interviews about their experiences during and after the treatment.

Research Question:

How do individuals' experiences learning mindfulness (including their preferred practices, future intentions for practicing, and mindfulness strategies) vary by different sociodemographic characteristics (gender, age, and socioeconomic status)?

Chapter II – Literature Review

The Definition of Mindfulness

Mindfulness is defined as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 1994, p. 4). This definition implies that mindfulness is an active practice rather than a passive attribute. It is something that you do and experience, not something that you are. One begins by bringing awareness to one’s current experience, observing and attending to the changing field of thoughts, feelings, and sensations from moment to moment by regulating the focus of attention. This leads to a feeling of being fully present to what is occurring in the current moment (Bishop et al, 2004).

The Effects of Mindfulness

There has been substantial interest in mindfulness as an approach to address a range of cognitive, psychological, emotional and physical conditions in recent years. Specifically, there is compelling evidence that mindfulness-based interventions can impact emotion-related outcomes and occupational outcomes, along with stress and addictions. The evidence on the effects of mindfulness on each of these domains is discussed below.

Mindfulness and Emotion-Related Outcomes

Mindfulness has shown significant impacts on emotion differentiation. Emotional differentiation refers to the accuracy in which people can identify and distinguish their emotions, either positive or negative. Mindfulness-based interventions actively train people to focus their attention to the present moment, including inner mental states, without evaluating or striving to change what is happening (Van der Gucht et al, 2018). A study conducted by Van der Gucht et al (2018) examined whether mindfulness impacted participants’ emotional differentiation skills.

Sixty-one adults who were enrolled in the study (13 male, 48 females, and 1 transgender) and followed a mindfulness-based intervention at a Stress Clinic in Belgium. Adults voluntarily registered to attend this intervention and were informed about the study through email. The study involved a single group design and had no control group. Adults were registered for a mindfulness-based intervention along with having an Experience Sampling Method or ESM. ESM is a momentary assessment method to evaluate participants in their daily living environments. This was used to measure emotion differentiation and mindfulness in daily life. The researchers found that participating in a mindfulness-based intervention improved emotion differentiation skills. Higher levels of trait mindfulness were related to greater emotions for both negative and positive. Meditation can really affect a person's emotions including how much hope they may have.

Mindfulness can provide insight into human emotional responses as well as affect dynamics. Affect dynamics is defined as “capturing the time-dynamic nature of emotions in daily life in describing how one feels changes or fluctuates across time. These patterns are proposed to be the result of multiple factors such as changing to internal or external circumstances or even social interactions. Affect dynamics contain crucial information about adaptive or maladaptive affective responses and well-being, which would be lost in using averaged or single measurements of affect” (Keng & Tong, 2016; Trull et al., 2015). A study administered by Rowland et. al (2018) conducted a randomized controlled trial to look further into how mindfulness outlines affect dynamics in daily life. A sample of 125 undergraduate students took part in a 6-week randomized controlled trial, either engaging in a low-intensity mindfulness training (n=61) or being part of the control condition (n=64). For 40 days, participants

completed questionnaires regarding their momentary affect and mindfulness. This was taken 6 times per day between 10am – 8 pm. This ambulatory assessment (AA) was administered through their phones within the defined time period. Participants in the mindfulness condition practiced mindfulness on five consecutive weekly appointments by completing a computer-based guided breathing meditation based on one created by Levinson and colleagues (2014).

Participants learned to be aware of the present moment by concentrating on the feelings that arose while being in tune with their constant breathing. Participants in the mindfulness intervention group were also encouraged, following the first mindfulness training session, to regularly practice mindfulness at home by breathing meditation or a body-scan guided meditation provided through their smartphones. Momentary mindfulness was measured to help assess present moment awareness through a 7-point scale. They found that mindfulness training was effective to increase momentary mindfulness. This study is among the first to examine how within-person processes of momentary mindfulness may help to shape affect dynamics in daily life. In addition to extending previous evidence on the relationship between dispositional mindfulness and affect dynamics, momentary mindfulness was found to be an important within-person process that may help to reduce fluctuations in affect experiences (Rowland et al, 2018).

A systematic review conducted by Goyal et. al (2014) aimed to determine the effect mindfulness may have on stress-related outcomes (anxiety, depression, positive mood, mental health, sleep, pain, weight etc.). They found that of 18,753 studies, 47 met their inclusion criteria. The reviews indicated that meditation programs, generally, can reduce the negative dimensions of psychological stress. Mindfulness meditation programs, in particular, show small

improvements in anxiety, depression, and pain with moderate evidence and small improvements in stress/distress and the mental health component of health-related quality of life.

Mindfulness has been known to be really effective on one's emotions and psychological well-being, especially in younger adults. A study conducted by Sanger (2016) examined the effects of school-based mindfulness training on emotional processing and well-being in adolescents. This study investigated the efficacy of a school-based mindfulness program that was delivered by school teachers, to older secondary students (16-18 years). Schools were selected based on socioeconomic status. For data collection, participants were administered questionnaires along with event related potential models (ERPs) to measure brain response through a direct result of a specific sensory or motor event. Emotional processing was measured through ERPs as well. A total of 48 participants were recorded and 21 of those participants were in the mindfulness training group. Using a portable EEG system, participants were tested individually during school hours and scheduled within independent study periods. Quiet testing spaces were provided on school grounds. During the EEG set-up period, students filled in self-report measures. The Five-Facet Mindfulness Questionnaire (FFMQ) and Perceived Stress Scale (PSS) were administered. The self-report findings support previous research on school-based mindfulness training, showing a significant increase in well-being (Huppert & Johnson, 2010; Metz et al., 2013). They also found a positive correlation between perceived stress change scores and mindfulness course satisfaction.

A systematic review administered by Gotnik et. al (2015) was aimed to review the effectiveness of MBSR and MBCT on individuals' overall well-being. After filtering and excluding studies that did not fit the inclusion criteria, they reviewed 187 studies and found

many relations of mindfulness to improvements in a person's health. They found significant improvements were reported in anxiety, teacher-rated attention, social skills and objective measures of selective (visual) attention. A study discussed within the systematic review found adolescents under current or recent psychiatric outpatient care showed significant intergroup improvements in stress, anxiety, and several psychopathological symptoms. They also found that more time spent in sitting meditation predicted improved functioning and a decline in depression and anxiety symptoms.

Mindfulness and Occupational Outcomes

Mindfulness has shown an impact on employee well-being and in the workforce as well. A study conducted by Slutsky et. al (2018) examined whether mindfulness training improved employee well-being and focus through the workday. This was a randomized controlled trial with 60 participants recruited through a midwestern marketing company. Recruitment was done through an in-person presentation and internal e-mails explaining a brief introduction to the study and its intentions on testing mindfulness training in the workplace. Participants were screened for eligibility by being above the age of 18 and had no recent mindfulness experience. They had to be English-speaking and own a smartphone. Eligible participants were asked to attend a mindfulness workshop (based on their availability) and then randomly assigned to either a high or low dose group at the end of the workshop. The high-dose mindfulness training program (HDMT; 6-week training) asked participants to complete one 25-minute guided mindfulness meditation audio recording each day, 5 days a week for the next 6 weeks. The low-dose mindfulness training program did not have any further mindfulness meditation and only had the half day training as all the participants did at the beginning of the study (LDMT; half-day

training). Participants in the high-dose group received standardized study reminder texts and e-mails throughout the 6-week training period. Participants were also able to call/text the study hotline or mindfulness instructor to ask questions or schedule individual meetings with the instructor. LDMT did not have the opportunity to call or text the hotline. Measures used to analyze the data through the attentional control scale, job satisfaction, productivity, work-life conflict and life-work conflict. For work-life conflict and life-work conflict, participants were asked to indicate their agreement to certain items ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores for both indicated greater work-life conflict and life-work conflict. Results found that HDMT participants increased attentional focus, job satisfaction, and reduced work-life conflict relative to LDMT. Overall, these findings indicate that 6-week mindfulness training carries significant benefits over a brief mindfulness seminar for multiple measures of employee well-being, specifically with attention to focus. Perhaps due to the attention monitoring mechanism of mindfulness training, employees in the HDMT were better able to focus on a job task, detach from distractors, and redirect their focus back to the job task (Slutsky, 2018). This study is the first to find beneficial effects of mindfulness training on attentional focus in the workplace.

Fisher et al (2017) investigated the moderating effects of mindfulness on the relationship between job stressors and strain outcomes. This study consisted of 251 police officers working in various small to mid-sized departments, all throughout the United States. To measure mindfulness, a Mindfulness Awareness Scale was administered with a 6-point scale which ranged from 1 (almost always) to 6 (almost never). Once questionnaires were received, data was analyzed, and researchers found that mindfulness did exhibit negative and statistically significant

correlations with all the strain outcomes provided. Consistent with previous research, mindfulness was negatively associated with strain outcomes in the sample, indicating that those who reported higher levels of mindfulness also reported lower levels of strain. In addition, results suggest that mindfulness lessened the negative relationship between workload and both mental and physical symptoms of strain, providing evidence that mindfulness might serve to protect workers against the harmful consequences of job demands (Fisher et al, 2017).

Mindfulness and Stress

A small number of studies have shown that individuals that practice mindfulness often typically perceive daily experiences as less stressful, requiring a reduced demand on their resources for coping (Keng et al., 2011; Weinstein, Brown, & Ryan, 2009). This means that individuals that practice mindfulness more often typically view life with less stress and can cope with different life stressors. Although little research has tested specific factors that might explain mindfulness' effects on subjective stress appraisals, prevalent theories of mindfulness have suggested that lower stressful evaluations may result from a broad, nonjudgmental awareness of one's internal and external experiences, such that individuals higher in mindfulness attend to a wide scope of environmental cues rather than becoming attached to one particular aspect of a situation (Bishop et al., 2004; Brown et al., 2007). Mindfulness Based Stress Reduction (MBSR) has been indicated to be generally helpful when promoting psychological and physiological health relating to stress. MBSR is an eight-week evidence-based program that offers intensive mindfulness training to assist people with stress, anxiety, depression, and pain. A systematic review conducted by Khoury et. al (2015) reviewed 29 studies to evaluate the efficacy of mindfulness (specifically MBSR) on stress. They found that MBSR interventions has moderate

effects on depression, anxiety, and distress, and a large reduction in stress. MBSR also has effects on increasing quality of life. A study conducted by Felver et. al (2016) decided to research a university who regularly provides this program and recruit participants to decipher the benefits of MBSR for postsecondary students experiencing psychological distress. Most of the participants were graduate students (62%) and primarily female (81%). This study was a non-experimental longitudinal research design and participants were administered questionnaires at three different periods of time during this eight-week program. Questionnaires are administered after the first week of MBSR, during the final and last week (eighth), and after two months of being finished from the class (follow-up). The results of this study contribute to existing literature, suggesting that MBSR is beneficial for post-secondary students and should be continued to be administered to upcoming generations.

A study by Munoz et. al (2018) evaluated the impact of mindfulness meditation on stress and hope. A quasi-experimental design was used in a community sample to help evaluate the impact of mindfulness on stress and hope. Two hypotheses were being tested in this study. First, participation in a mindfulness meditation class would be associated with reductions in stress and increases in hope. Secondly, participation in a mindfulness meditation would predict increases in hope mediated by reductions in stress. To test these hypotheses, a non-randomized comparison group design with pre- and post-test surveys were used to evaluate the relationship of participation in a mindfulness meditation class to reductions in stress and increases in hope. All participants were employees of a large nonprofit organization in South Central U.S. Participants in the meditation class were recruited through email or word of mouth which were all conducted on site of the organization. Selection criteria was based on anyone over the age of 18, that

worked at the organization and expressed interest in participation in a mindfulness meditation class or the comparison group. The study was a quasi-experimental design with a total of 46 participants whom were all white and primarily females. Of the 46 participants, 23 were classified in the meditation group while the other 23 were in the comparison group which were chosen voluntarily by the participants. A community sample was used to evaluate the impact of mindfulness meditation on stress and hope. Participants in the meditation intervention took a class that consisted of seven sessions over a 6-week period and surveys were given to evaluate the effectiveness of the class. Hope and stress were measured by different scales (Adult Hope Scale and Perceived Stress Scale). To analyze results, a multivariate analysis of covariance was administered, and results portrayed that indeed mindfulness meditation was associated with lowered stress and increased hope within participants. The data indicated that the meditation group exhibited significantly higher hope and lower stress levels than the comparison group. The path analysis indicated that reductions in stress fully mediated the relationship between mindfulness meditation and increases in hope (Munoz et al, 2016).

Mindfulness and Addiction

Many mindfulness-based therapies have been developed to treat addictions, including Mindfulness-Based Relapse Prevention (MBRP) and Mindfulness-Oriented Recovery Enhancement (MORE). MORE is distinct from other mindfulness-based interventions because it uses mindfulness training as a means of promoting positive psychological processes to improve health and well-being. In this sense, the treatment is truly “integrative,” combining the complementary strengths of different therapeutic techniques into one, a synergistic approach. These types of therapies have been tailored to directly address the mechanisms that maintain

addiction. For MBRP, the primary goals are to raise awareness of triggers, monitor internal reactions, and foster more skillful behavioral choices. This practice focuses on increasing acceptance and tolerance of positive and negative feelings including physical, emotional, and cognitive states, such as craving, thus decreasing the need to alleviate associated discomfort by engaging in substance use.

Mindfulness allows people to clearly ascertain what is driving their behavior or addiction and whether it is moving them to or away from their goals. It allows an individual to really clear their mind and understand what drives an addiction. A systematic review conducted by Li et. al (2017) analyzes studies involving mindfulness on addiction and substance misuse. A total of 42 studies examined effects of different types of mindfulness treatment on substance misuse problems. Majority of studies in this review reported that mindfulness treatment was effective in reducing substance misuse and influenced medical, psychological, relationship, and legal problems.

A study conducted by Garland et. al (2014) was aimed to explore the mediators of trait mindfulness and substance craving in a sample of people in treatment for substance use disorders (SUDs). A total of 165 participants met the criteria for having one or more substance dependence diagnoses. Individuals consented to participate and majority of them met criteria for cocaine and/or alcohol dependence. Many participants also met the criteria for psychiatric disorders, with major depressive disorder and generalized anxiety disorder being the most common diagnoses. The Five Facet Mindfulness Questionnaire was used to measure trait mindfulness (FFMQ). This asks many questions about one's feelings and attentiveness using a 39 Likert-type scale. Craving was also measured using Penn Alcohol Craving Scale which assessed craving for alcohol and

other psychoactive substances. Results showed that individuals with higher levels of trait mindfulness reported lower levels of negative emotions and superior ability to regulate emotional distress. Stress can influence and initiate craving, so increased use of evaluations to cope with stress by individuals higher in trait mindfulness might reduce the urge to use psychoactive substances. Individuals who reported greater tendency to observe present moment experiences tended to initiate higher levels of readiness to change their lives.

To focus more on cigarette smoking, a study conducted by Luberto et. al (2017) examined the efficacy of brief mindfulness training for smokers and its effects on their ability to tolerate emotional distress. Participants consisted of 86 daily smokers which were recruited locally for a study on smoking and emotions. They were randomly assigned to either the mindfulness group (44 participants) or control condition (42 participants). Participants in the mindfulness condition listened to an audio recording which guided them through a general 10-minute sitting meditation. Participants in the control group listened to a 10-minute audio-recording of a passage from a high school-level natural science textbook. This was only administered once to each individual. Both were read aloud and at a similar pace and tone. A series of 2x2 mixed ANOVAS were used with self-reported distress tolerance, behavioral distress tolerance, smoking urges, level of subjective distress and state mindfulness as separate dependent variables. Results indicated that brief mindfulness training may be effective for state-level change, but a single brief intervention is not sufficient to produce improvements in state mindfulness and distress levels. Brief, single-session mindfulness can increase state mindfulness and might be useful for reducing distress levels in smokers which could help smokers withstand long periods of cravings, distress, or withdrawal symptoms.

There are many components and types of mindfulness training, one of them being nonjudgement of inner experience. A study conducted by Schuman-Oliver (2014) decided to see if this component of mindfulness could influence smoking cessation. This was a randomized control trial of 85 tobacco smokers. This experiment was a 4-week treatment phase with either mindfulness training (MT) or Freedom from Smoking (FFS) which is a type of cognitive behavioral therapy. Then a post-treatment follow-up at 6, 12, and 17 weeks after treatment initiation. Recruitment was administered through flyers and media advertisement. Eligibility involved participants between the ages 18-60 and smoked more than 10 cigarettes per day. All participants received weekly group sessions twice, (8 total) delivered by instructors experienced in either MT or FFS. The MT treatment introduces the body technique and other mindfulness techniques while FFS includes behavior modification, stress reduction, and relapse prevention. Smokers completed an FFMQ which is a 39-item measure of dispositional mindfulness using a Likert five-point scale. Results found that cigarette smokers who rarely judge their inner experiences (higher levels of trait nonjudgement assessed with FFMQ) may be more likely to maintain reductions in cigarette smoking and influences their cravings.

A similar study conducted by Brewer et. al (2011) evaluated effects of mindfulness training (MT) for smoking cessation. This study was a randomized controlled trial with a 4-week treatment and post treatment, along with follow-up interviews administered at 6, 12, and 17 weeks after treatment initiation. Participants were recruited through flyers and media advertisements offering behavioral treatment for smoking cessation. They found 88 participants that met the eligibility criteria and randomized them into either the MT or FFS interventions groups. Freedom from Smoking or FFS is a widely used intensive smoking cessation

intervention. All participants received twice weekly group sessions (eight total) that were manualized and delivered by instructors experienced in MT (a single therapist with >13 years of training in MT) or certified in FFS. FFS was chosen as active comparison condition for a number of reasons, “(1) it has demonstrated efficacy (Lando et al., 1990), (2) it is manualized and standards for training and certification of therapists are established, (3) it is widely available, and (4) it includes components that are well-matched with MT, but does not include hypothesized mechanism of MT” (Brewer, 2011, p. 74). Results found that individuals who received MT demonstrated greater reductions in smoking, which were maintained through the 17-week follow-up interview. These findings are impactful as behavioral treatments have shown little overall improvement in cessation rates over the past 30 years.

A study conducted by Vidrine et. al (2016) looked closely into the efficacy of MBAT versus other behavioral therapies for smoking cessation and lapse recovery. Participants were recruited from the Houston metropolitan area through local print media. After phone screens and assessing eligibility, participants were randomized into either usual care (UC), CBT, or MBAT intervention groups. Cognitive Behavioral Therapy or CBT utilizes a fairly standard problem-solving/coping skills training approach based on relapse prevention theory (Marlatt & Gordon, 1985) and the Guideline (Fiore et al., 2008). This specific treatment has a manual which provides a detailed overview of each session, including time estimates for each activity and notes to the therapist highlighting potential participant issues and possible responses/probes. All activities are aimed towards promoting smoking cessation and the maintenance of abstinence. Each session has specific objectives, and each activity corresponds with a minimum of at least one objective. The Usual Care Intervention or UC received four 5 to 10-minute counseling sessions that

correlate with the Guideline manual. The sessions emphasized problem solving coping skills training. For analysis, questionnaires were administered to all participants through a computer. MBAT is a type of therapy that is an innovation of the standard group approach that incorporates a multimodal dimension designed to enhance both the supportive and expressive aspects of the experience and facilitate a deeper internal connection with self and others. Surprisingly enough, results indicated that there were no significant overall differences in abstinence rates across the three treatments. However, MBAT did show benefits over and above CBT and UC in promoting recovery from a lapse, such that MBAT participants were more likely to recover abstinence post-treatment. This shows that MBAT may be effective for preventing early lapses from transitioning to full blown lapses.

Mindfulness has shown to really affect people's stress, health, and psychological well-being overall. It has been a factor that could improve addiction as well as coping with day-to-day stressors. Most mindfulness research has not included sufficiently diverse populations, and we need to understand how people from various sociodemographic backgrounds experience mindfulness. A systematic review conducted by Waldron et. al (2018) examined the socioeconomic and demographic characteristics of adults enrolled in US based randomized controlled trials of MBSR and MBCT. From the 69 randomized control trials that were picked for revision, they found that racial/ethnic minorities, individuals of lower socio-economic status, and men were underrepresented in the 69 US-based studies of MBSR and MBCT. Compared to US population estimates, the randomized controlled trials of MBSR and MBCT included only one-quarter the percentage of Hispanic/Latinx participants (4% in studies vs. 17.6% in the USA) and fewer African-American (11% in studies vs. 13.3% in the USA) and Asian-American

participants (4% in studies vs. 5.6% in the USA). These findings suggest that there is not enough reliable research that incorporates mindfulness and its perception from other demographics.

Results cannot accurately be generalized for a larger population or be a representation if the primary study did not use an accurate population. It's important to provide more research within mindfulness because it is a new and upcoming concept that could benefit society. This is why it's imperative to research which demographic is likely to practice mindfulness and help us understand what factors make this more applicable to certain demographics while trying to make it adaptable as well.

Chapter III – Methods and Procedures

Study Design

The study design of the parent study was a randomized clinical trial where participants were randomly assigned into one of two active intervention conditions (MBAT or iQuit Mindfully). At one-month follow-up, participants engaged in one-on-one, in depth interviews, which provided data for the present analysis.

Study Participants

Recruitment occurred from January to end of June 2017 through flyers in many prominent places with a lot of foot traffic around Atlanta (hospitals, public transportation train stations, community centers, shelters etc.) and online sources (Craigslist, listservs). Individuals were eligible to participate if they spoke English, were between the ages of 18-65 and were current smokers motivated to quit within 30 days (with a history of ≥ 5 cigarettes/day for the past year and expired carbon monoxide (CO) ≥ 6 ppm); individuals that use tobacco products regularly other than cigarettes or any active substance abuse/dependence were not eligible. Individuals were also excluded if they had a household member enrolled in the study. Interested individuals were asked to contact the study team by phone, at which point they were screened for eligibility. Those eligible based on the phone screen attended a baseline session for in-person assessment of additional eligibility criteria and, if eligible, consented and enrolled. Written informed consent was provided by each subject.

A total of 266 people completed phone screens. Of those 266, 77 were not eligible at the time of phone screen. One hundred people were assessed for in-person eligibility, of which 28 were non-eligible and 72 participants were enrolled. One individual was removed for disruptive

behavior during the treatment groups, leaving an analytic sample of 71. Of the 71 participants in the program, 60 completed interviews that were audio-recorded, and therefore makeup the final sample size for this study. The Georgia State University IRB approved the study.

Description of the Intervention

Participants were randomized to one of two interventions. The MBAT intervention group had 33 participants partake while the “iQuit” Mindfully group had 38 participants. The MBAT intervention involved eight weekly 2-hour in-person group treatment sessions, nicotine patch therapy, and self-help materials. The aims of MBAT were to: (a) become more aware of thoughts, feelings, and sensations from moment to moment, (b) develop a different way of relating to thoughts, feelings, and sensations, and (c) increase the ability to disengage attention and choose skillful responses to any thoughts, feelings, or situations that arise (Vidrine et al., 2016). MBAT is intended to serve as a primary treatment approach and incorporates meditation practice later within each treatment session. Participants in the iQuit Mindfully condition similarly received the MBAT intervention and also received text messages throughout the day, which remind participants to practice mindfulness. These texts also reminded participants of their personal reasons to quit as well as specific strategies to aid in cessation (ex: reminders to get rid of cues to smoke, reach out for social support, and to use cognitive behavioral strategies taught in MBAT). Participants were also able to text specified words to request help. For example, they may text CRAVE, STRESS, or SLIP at any point to received additional support through text messages for coping with cravings, stress, or smoking lapses, respectively. Participants also received a relatively small number of texts (1-3 per week) during the 1-month

follow-up period, and also had the opportunity to text keywords (CRAVE, STRESS, SLIP) during this time.

Procedure

Following randomization to the iQuit Mindfully or MBAT intervention group, participants completed a baseline assessment, which was a survey that assessed a range of constructs including how many cigarettes they smoke per day, how many years they have smoked, and if they have had any experience with mindfulness. Sociodemographic characteristics were also asked, but only at baseline. It was also asked if the participants had ever tried quitting and if so, for how long. Assessments also occurred at each of the weekly in-person visits, at the end of the intervention (after 8 weeks of the program), and at 1-month follow-up. The weekly assessments asked questions regarding how many cigarettes they have consumed within that week or how often mindfulness was practiced. At the end of the 8-week session and at 1-month follow-up, assessments asked how their overall experience was in the program and how it may have impacted them.

Interviews

At the one-month follow-up, in addition to completing the follow-up questionnaire, participants from both groups (MBAT and iQuit Mindfully) completed one-on-one in-depth interviews which aimed to assess their experience with mindfulness within the program overall. Interviews were conducted by trained research staff. Participants were asked questions involving what their meaning of mindfulness is and asked for their feedback and suggestions for improving the intervention. Participants that were randomized into the iQuit Mindfully group had these questions along with more in-depth discussion of what they did or did not like about the texts,

how they viewed the messages to be helpful or unhelpful, and suggestions on how to improve the text part of the program. Audio files of the interviews were transcribed verbatim among the sample of 60 participants. Interviews were conducted on Georgia State University's campus and lasted anywhere from 20 minutes to about 50 minutes depending on the intervention group.

Analysis

Codes were developed by reading through transcripts and deciphering common aspects within each group. Once codes were finalized through thorough revisions, NVivo 11 was then used to code interviews from both groups. Interviews were coded rigorously by graduate students and by two separate groups (one for MBAT and one for MBAT with text messaging). The other 11 participants were lost to follow-up and did not come back after the one month time period. Each week students would code a group of interviews, then reconvene to discuss the coding process and resolve discrepancies. Using the codes, we exported quotes from the interviews which clearly portray each of these emerging themes. This was done to primarily understand which participants mentioned practicing mindfulness and understanding how different types of groups view mindfulness. Each group went through and coded the same set of interviews and then researchers discussed the coding of each interview to resolve any discrepancies. This process was done repeatedly for about 2 months until researchers had an agreement on coding results to independently code without revision. For this particular analysis, we calculated descriptive frequencies of the demographics, instead of inferential statistics. This was administered through SPSS and by differentiating which cases spoke about certain themes and running a frequency on those certain cases by the demographic variables selected. When we ran the frequency, the percentages found were from the total amount of people that spoke about that particular theme.

The percentage denominator adds up to show all the people that mentioned a certain theme and percentages of the particular variables we were testing were found within that denominator.

Chapter IV - Results

Sociodemographic Characteristics of the Study Population

Age was broken down into 3 separate categories, 18-30, 31-49, and 50-65.

Race/ethnicity, gender, and marital status were also assessed. Education was divided into 10 different groups from 9 years (high school) and increasing every year to post graduate degree.

Lastly, it was important to look at annual family income per year to help understand the socioeconomic status of the population. This was divided into 3 separate categories, less than \$18,000, \$18,001-\$60,000, and \$60,001 or more per year. See Table 1 for sociodemographic characteristics of the sample.

Sociodemographic Characteristics of Sample

Table 1:

Characteristic	n/Frequency (%)
Age	
18-30	n= 10 (16.7%)
31-49	n= 23 (38.3%)
50-65	n= 27 (45%)
Race/Ethnicity	
White	n= 12 (20.0%)
Black or African American	n= 46 (76.7%)
Asian	n= 1 (1.7%)
Hispanic	n= 1 (1.7%)
Gender	
Female	n= 32 (53.3%)
Male	n= 28 (46.7%)
Marital Status	
Single	n= 39 (65.0%)
Married	n= 10 (16.7%)
Divorced	n= 6 (10.0%)
Widowed	n= 2 (3.3%)
Living with SO	n= 1 (1.7%)
Separated	n= 2 (3.3%)

Education	n= 1 (1.7%)
9 years (some high school)	n=4 (6.7%)
10 years (some high school)	n=5 (8.3%)
11 years (some high school)	n=14 (23.3%)
12 years (high school or GED)	n=15 (25.0%)
Some college/technical school	n=8 (13.3%)
Associates degree	n=8 (13.3%)
Bachelor's degree	n=2 (3.3%)
Some post graduate school	n=2 (3.3%)
Master's degree	n=1 (1.7%)
Post graduate degree (M.D., Ph.D, etc.)	
Income per year	
< \$18,000 (low SES)	n=26 (43.3%)
\$18,001-\$60,000 (mid SES)	n=17 (28.3%)
> \$60,001 (high SES)	n=12 (20.0%)
Total:	n=60

Major Themes

Three major themes emerged through the analysis of the participant interviews related to (1) mindfulness practice, (2) mindfulness strategies to quit and (3) other applications of mindfulness practice. Within each major theme, several subthemes emerged.

Major Theme 1: Mindfulness Practice

Mindfulness practice included any general mention of practicing mindfulness outside of the group sessions. We identified and coded for subthemes as well. Informal practice included any mention of recognizing mindlessness, turning off auto-pilot, intentionality, being attentive, focus, self-awareness or even awareness of surroundings/environment. This is the idea of just being present and using in-the-moment mindfulness strategies like S.T.O.P (Stop, Take deep breaths, Observe, Proceed) or RAIN (Recognize what is going on, Allowing, Investigating with Kindness, Natural loving awareness). Formal practice included any mention of practicing meditation or mindfulness formally, such as sitting meditation, yoga or the body scan. This is

more of a structured practice while informal involves mindfulness practice in the midst of daily life activities. Future Practice included any mention of plans to continue practicing mindfulness, or any mention for plans or strategies to implement mindfulness practice into their daily lives as well. This included strategies to continue their practice as well as indications that participants did not plan to continue mindfulness practice.

Major Theme 2: Mindfulness Strategies to Quit Smoking

With respect to the Mindfulness Strategies to quit smoking theme, we identified and coded for any mentions of mindfulness-based strategies used to quit smoking or cut down. This would be examples of breathing or the S.T.O.P. exercise explained above. This could also include a strategy called surf-the-urge. This is the idea that when a participant started to feel a craving coming on, they practiced bringing their awareness to the sensations of craving (including thoughts, emotions, and physical sensations), using their breath as a “surf board” to ride out these sensations and notice when they eventually pass.

Major Theme 3: Other Applications of Mindfulness Practice

With respect to the Other Applications of Mindfulness theme, we identified and coded for indications of using mindfulness for changing other health behaviors and for managing stress and other situations. The Other Health Behaviors code included discussion that the participant may have used mindfulness for changing their diet, exercise, alcohol, use drug/substance abuse, etc. The Stress/Situational subtheme included any mention of using mindfulness to cope with stress or situational issues pertaining to personal life, work, relationships, family, etc. Refer to Table 2 for list of themes and subthemes.

TABLE 2:

<u>Major Theme</u>	<u>Description of Theme</u>
Mindfulness Practice	Any general mention of practicing mindfulness outside of the group sessions not in the group sessions
Informal Practice (unstructured)	Any mention of recognizing mindlessness, turning off auto-pilot, intentionality, being attentive, focus, self-awareness or awareness of surroundings/environment, being present, S.T.O.P., “RAIN”, etc.
Formal Practice (structured)	Any mention of practicing meditation or mindfulness formally, e.g. guided meditation, sitting meditation, yoga, body scan, etc.
Future Practice	Any mention of plans to continue practicing mindfulness, plans or strategies to implement mindfulness practice into their daily lives, strategies to continue their practice; this could also include participant saying that they do <i>not</i> plan to continue mindfulness practice in response to our question about that
Mindfulness Strategies to Quit Smoking	Any mentions of mindfulness-based strategies used to quit smoking or cut down, e.g. STOP exercise, surf-the-urge, breathing, etc.
Other Applications of Mindfulness Practice/Internalization of Mindfulness	Any general mention that participant has applied/used mindfulness for something other than smoking cessation or that participant has internalized the mindfulness practice or adapted it into his/her own unique practice/application
Other Health Behaviors	Diet, exercise, obesity, weight loss, alcohol, drug/substance abuse, etc.
Stress/Situational	Any mention of using mindfulness to cope with stress or situational issues pertaining to personal life, work, relationships, family etc.)

Analysis of Themes:

Mindfulness Practice

Tables 3:

Variable	Frequency (n)	Percent	
Male	7	50%	
Female	7	50%	
31-49	6	42.9%	
50-65	8	57.1%	
Low	2	14.3%	
Medium	6	42.9%	
High	3	21.4%	Total = 14

We found that of the 14 participants that mentioned any type of practice, exactly half (n=7) of men mentioned this and half (n=7) of women mentioned this. Participants mentioning mindfulness practice outside of the group sessions was more common amongst the older age group (n=8) than mid age group (n=6). There were no younger age group participants that reported mindfulness practice outside of group sessions. Interestingly enough, we found that participants that mentioned practicing mindfulness more outside of their group sessions tended to be classified in the middle-income group. For example, one mid-income, middle-aged woman said,

“You know how people could just irritate you during your day? I just start the mindfulness exercise. I’m an emotional person. I found that if I stay in the moment it helps.”

Formal vs. Informal Mindfulness Practice

Informal

Table 4

Variable	Frequency (n)	Percent	
Male	22	50%	
Female	22	50%	
18-30	7	15.9%	
31-49	16	36.4%	
50-65	21	47.7%	
Low	19	43.2%	
Medium	11	25%	
High	9	20.5%	Total = 44

Formal

Table 5

Variable	Frequency (n)	Percent	
Male	24	47.1%	
Female	27	52.9%	
18-30	8	15.7%	
31-49	19	37.3%	
50-65	24	47.1%	
Low	21	41.2%	
Medium	15	29.4%	
High	11	21.6%	Total = 51

We found that women mentioned practicing formal mindfulness (52.9%) more than men (47.1%). We also found that both informal (43.2%) and formal (41.2%) practice was spoken about more amongst the lower income groups than any other income groups. Regarding age, older individuals (50-65) mentioned practicing some type of mindfulness (either informal or formal) than any other age group. For example, when asked about whether she practiced any formal mindfulness techniques, an older, and lower-income woman reported,

“I do the sitting meditation a lot. Sometimes when I’m sitting out on my back porch in the morning drinking my coffee, I just sit there and I meditate. I listen to the birds, and I

feel the sun on my skin. I feel the wind blowing across me. I just mostly I do that in one—if I had a real, real stressful day, I'd do it sometimes during the day if I get a few minutes.”

Future Mindfulness

Table 6

Variable	Frequency (n)	Percent	
Male	24	47.1%	
Female	27	52.9%	
18-30	9	17.6%	
31-49	21	41.2%	
50-65	21	41.2%	
Low	22	43.1%	
Medium	17	33.3%	
High	8	15.7%	Total = 51

For any mention of future mindfulness practice, we found that a total of 51 participants mentioned this. Primarily women (52.9%) mentioned how they may practice mindfulness in the future compared to men (47.1%). We also found that both 30-49 and 50-65 age groups evenly mentioned they would practice mindfulness in the future. Lower income groups mentioned practicing mindfulness in the future as well (43.1%). For example, an older, lower-income male reported that,

“Well, I’m gonna continue to practice the different exercises that I had learned throughout these different sessions because they continue—it was helpful on my journey. Since I’m not going to come to group anymore, I’m not gonna stop there. I’m gonna continue practicing the things that I learned to help me on my journey of life.”

Mindfulness Strategies to Quit Smoking vs. Other Applications of Mindfulness Practice

Mindfulness Strategies to Quit Smoking

Table 7

Variable	Frequency (n)	Percent	
Male	11	42.3%	
Female	15	57.7%	
18-30	5	19.2%	
31-49	8	30.8%	
50-65	13	50%	
Low	8	30.8%	
Medium	11	42.3%	
High	6	23.1%	Total = 26

Other Applications of Mindfulness Practice (Other health behaviors and stress/situational included)

Table 8

Variable	Frequency (n)	Percent	
Male	6	30%	
Female	14	70%	
18-30	4	20%	
31-49	6	30%	
50-65	10	50%	
Low	8	40%	
Medium	4	20%	
High	6	30%	Total = 20

We found that of the 26 participants who mentioned any mindfulness strategies they used to quit, women mentioned discussing this (57.7%) more than men (42.3%). Similarly, of the participants that practiced other applications of mindfulness (n=20), women mentioned using other applications of mindfulness practice (70%) more than men (30%). For example, one woman participant described using other applications of mindfulness practice:

“I’m mindful of what I eat now, and we took the raisin, and we felt it. Just like with my food now, it’s just I’m eatin’ slower and everything.”

For age, we found that older participants (50-65) mentioned discussing both mindfulness strategies to quit (50%) and other applications of mindfulness practice (50%) more than any other group. For example, one older participant mentioned,

“Well, I just want to add that it could be used on other things like eating potato chips, which is something that I shouldn’t be doing, but I do. I take my mind off of it. It helped me to cut down on a lot of bad habits.”

The big difference amongst these two groups was socioeconomic status. We found that participants who discussed mindfulness strategies to quit were more i (42.3%) while participants who discussed other applications of mindfulness with other health behaviors, including any mention of stress/situational, was discussed more prominently amongst lower income (40%). For example, one lower income participant said,

“I mean, the constant reminder that I do have, is the medical condition that I'm dealing with, my COPD and emphysema. That’s enough right there to be mindful, especially when it comes time for me being physically active. I'm not as physically active as I could or capable of being because of the ailment that I have is preventing me from doing that. The COPD and emphysema, so. Just knowing that I have a goal in mind and my health in mind is gonna be a reminder enough, so.”

Chapter V – Discussion

Overall Findings

This study was conducted to examine sociodemographic differences in smokers' experiences with a mindfulness-based addiction intervention. Overall, mindfulness practice outside of the session groups was mentioned equally across both men and women. We found that the older age group (50-65) and mid-income group mentioned practicing mindfulness outside of the intervention more than the low- or high-income group and more than the younger or middle age group. When it comes to formal vs. informal, women discussed more about practicing formal, structured exercises predominantly more than men. Both older participants and the lower income group discussed practicing both informal and formal activities more than any other age or income group. We also found that plans for future mindfulness practice were mentioned more often by females in hopes to quit smoking. While lower-income participants discussed practicing mindfulness in the future more than the high- or mid-income groups. Both age groups (30-49 and 50-65) discussed future mindfulness practice plans more than the lower age group. Lastly, we found that women were likelier to discuss practicing mindfulness strategies to quit and use mindfulness in other applications or behaviors. We also found that the older age group also discussed practicing mindfulness strategies to quit and using it for other health behaviors as well. The big difference in this group was that mindfulness strategies to quit smoking was discussed being used more amongst the middle income groups while applying mindfulness to other health behaviors like diet, exercise, or stress was likelier discussed amongst the lower income group.

With our findings, there may be a number of reasons why specific sociodemographic subgroups discussed mindfulness practices more than the other. We found that the older age

group (50-65) discussed practicing mindfulness and their intent on future mindfulness more than any other age group. This could be because the older generation have not had the influence of technology and are more inclined to be mindful and meditate more. The influence of technology on the younger generations has allowed for millennials to be focused on many outside influences which inhibit the idea of being mindful and providing a sense of being present. Women discussed mindfulness in many aspects, including future mindfulness, more than men. This could be because women are likelier to be present with their feelings which could allow them to be more inclined to practicing meditation techniques. Our results are unique because not many studies have been published in relation to how different demographics may perceive and adapt to mindfulness in their day-to-day lives after being administered an intervention.

These findings are different from prior studies because we wanted to look at which demographics (based on age, SES, and gender) were more inclined to mention practicing mindfulness. Studies have shown a variety of benefits of mindfulness practice, including stress reduction, treating addictions, emotional distress etc. For example, the systematic review conducted by Li et. al (2017), reported that mindfulness treatment was effective in reducing substance misuse and related medical, psychological, relationship, and legal problems, and in increasing abstinence from any substance abuse. This provides an outlook on how mindfulness is beneficial for a person's well-being, but it is also imperative we provide more evidence and research on perceptions certain demographics may have on mindfulness. Another example is the study administered by Munoz et. al, 2018, discussed how mindfulness meditation can be beneficial in the feeling of hope or stress reduction, but no studies have discussed whether people

from different sociodemographic backgrounds would mention practicing mindfulness more than others.

Studies, like the one administered by Fisher et. al (2017) have also found mindfulness to be beneficial in occupational settings especially for high-stress jobs but no indication on whom was likelier to engage in mindfulness techniques. Many studies discuss the beneficial factors of mindfulness practicing on health, but more research needs to be established to help better understand how certain demographics may view/practice mindfulness. A systematic review administered by Waldron et. al (2018), found many studies that discuss comparing sociodemographic characteristics and the impact MBSR and MBCT may have on certain individuals. They found that all the studies were not a true representations of the U.S. population which provided no reliability in the results from any of the studies. It is important to consider that mindfulness-based interventions may not be equally effective for clinical outcomes across populations of varying socio-economic and demographic characteristics. Therefore, diversity in randomized controlled trials is essential. For this particular study, we wanted to find out who mentions any sort of mindfulness practice or reports plans for future practice to understand which demographic mindfulness may appeal to. This allows a better idea of whether people from different sociodemographic backgrounds may be more likely to try different mindfulness strategies.

Limitations:

There are limitations to take note of in this study. One limitation is that our results were only found amongst a smoker population, so it may be more applicable to smokers initiating that results could be different for people dealing with other addictive behaviors or even people with

no addictive behaviors at all. Understanding experiences with mindfulness from both smokers and non-smokers could be beneficial for future studies. In addition, participants who received the “iQuit” Mindfully text messages could have been likelier to discuss practicing mindfulness since they had reminders to practice and were able to text in if they were dealing with cravings or stressful situations. They also were reminded with encouraging, self-esteem messages throughout the day which could have an effect on applicability. This study did not examine differences by both treatment condition and sociodemographic characteristics because of very small subsample sizes. Lastly, the original study targeted recruitment towards lower-SES smokers, so future research is needed with a large and more socioeconomically diverse samples.

Implications:

Our results suggest that in this sample of smokers receiving Mindfulness-Based Addiction Treatment, women were more likely to mention mindfulness practice, with predominantly positive experiences, compared to men. Results also suggest that older ages are more inclined to discuss mindfulness and the likelihood of practicing was higher amongst the older age group. Most research on mindfulness has not included diverse samples and it is important to understand the experiences of people from different backgrounds. It’s imperative to define which demographic variables have a higher chance in discussing mindfulness so that future studies can proactively figure out how to provide mindfulness interventions to all demographics in society. For smokers particularly, future interventions on smoking cessation should examine how to make mindfulness more appealing to all demographics in hopes of quitting smoking. This analysis provided insight on potential demographic differences in experiences learning and practicing mindfulness.

Conclusion:

Overall, our study suggests which demographics were more inclined to discuss practicing mindfulness or their intentions for continuing to practice mindfulness. We found that amongst most of the themes we listed, women mentioned practicing mindfulness more than men. We also found that women discussed practicing formal meditation more than informal meditation as well as mentioned practicing both types more than men. Surprisingly, we found that the older age group discussed mindfulness practices more than any other age group. Lastly, we discovered that participants with a lower income have a higher chance of discussing mindfulness in all combined themes except when it came to using mindfulness strategies to quit smoking. Participants in the middle-income category mentioned this more while using mindfulness for other health behaviors was mentioned more by lower-income participants. Future research is needed to continue examining whether people from different sociodemographic backgrounds have different experiences with mindfulness practice, and to understand whether adaptations may be needed to optimize interventions for specific groups.

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